

WHAT IS CLAIMED IS:

1. An image forming apparatus in which a
5 plurality of applications can be installed, the image
forming apparatus comprising:

a use control part for receiving one or more
authentication results from one or more authentication
parts, and controlling use restriction for one or more
10 applications according to the received one or more
authentication results.

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2. The image forming apparatus as claimed in
claim 1, wherein the use control part refers to
information indicating one or more authentication parts
that correspond to an application, causes the one or
20 more authentication parts to perform authentication
process when the application is used, and sends an
authentication result to the application.

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3. The image forming apparatus as claimed in claim 1, wherein the use control part refers to information indicating one or more applications that correspond to an authentication part, and sends an authentication result of the authentication part to an application in the one or more applications when the application is used.

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4. The image forming apparatus as claimed in claim 1, wherein the use control part includes a part for controlling use restriction for a function of the application.

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5. The image forming apparatus as claimed in claim 1, wherein the use control part sends an authentication result indicating success of authentication to the one or more applications only when authentication by all of the one or more

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authentication parts succeeds.

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6. The image forming apparatus as claimed in claim 1, wherein the use restriction part sends an authentication result indicating success of authentication to the one or more applications when
10 authentication by at least one authentication part in the one or more authentication parts succeeds.

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7. The image forming apparatus as claimed in claim 1, wherein each of the one or more authentication part is an application or an apparatus connected to the image forming apparatus.

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8. The image forming apparatus as claimed in
25 claim 1, wherein the authentication part performs

authentication by using user authentication information
input by a user and user authentication information
registered beforehand.

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9. The image forming apparatus as claimed in
claim 1, wherein the authentication part performs
10 authentication by using billing information input by a
user and available billing information registered
beforehand.

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10. The image forming apparatus as claimed in
claim 1, the image forming apparatus further comprising
hardware resources used for image forming processes,
20 and control services that perform processes of the
system side including control of the hardware resources,

wherein the image forming apparatus is
configured so as to be able to install a plurality of
applications separately from the control services, and
25 the image forming apparatus includes the use control

part as a control service.

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11. The image forming apparatus as claimed in claim 1, the authentication part comprising:

a user information input part for a user to input user identification information and user authentication information;

10 an external server communication part for sending the user identification information input by the user to an external server, and receiving user authentication information corresponding to the user identification information from the external server;

15 and a part for determining whether the user authentication information received from the external server is the same as the user authentication information input by the user, and sending a determination result to the use control part.

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12. The image forming apparatus as claimed in claim 1, the authentication part comprising:

a user information receiving part for receiving, from a client terminal, user identification
5 information and first billing information indicating usage of the image forming apparatus by a user;

an external server communication part for sending the user identification information to an external server, and receiving second billing
10 information corresponding to the user identification information from the external server;

a billing process part for comparing the first billing information received from the client terminal with the second billing information received
15 from the external server, and sends a comparing result to the use control part.

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13. The image forming apparatus as claimed in claim 12, wherein the client terminal reads the user identification information and the first billing information from an external recording medium, and the
25 user information receiving part receives the user

identification information and the first billing
information from the client terminal.

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14. The image forming apparatus as claimed in
claim 11, wherein the external server is a LDAP server
on a network.

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15. A use control method for an application
in an image forming apparatus in which a plurality of
15 applications can be installed, the use control method
comprising:

a use control step for receiving one or more
authentication results from one or more authentication
parts, and controlling use restriction for one or more
20 applications according to the received one or more
authentication results.

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16. The use control method as claimed in
claim 15, wherein the image forming apparatus refers to
information indicating one or more authentication parts
that correspond to an application, causes the one or
5 more authentication parts to perform authentication
process when the application is used, and sends an
authentication result to the application.

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17. The use control method as claimed in
claim 15, wherein the image forming apparatus refers to
information indicating one or more applications that
15 correspond to an authentication part, and sends an
authentication result of the authentication part to an
application in the one or more applications when the
application is used.

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18. The use control method as claimed in
claim 15, wherein the image forming apparatus controls
25 use restriction for a function of an application.

5 19. The use control method as claimed in
claim 15, wherein the image forming apparatus sends an
authentication result indicating success of
authentication to the one or more applications only
when authentication by all of the one or more
10 authentication parts succeeds.

15 20. The use control method as claimed in
claim 15, wherein the image forming apparatus sends an
authentication result indicating success of
authentication to the one or more applications when
authentication by at least one authentication part in
20 the one or more authentication parts succeeds.

25 21. The use control method as claimed in

claim 15, wherein each of the one or more authentication part is an application or an apparatus connected to the image forming apparatus.

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22. The use control method as claimed in claim 15, wherein the authentication part performs authentication by using user authentication information input by a user and user authentication information registered beforehand.

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23. The use control method as claimed in claim 15, wherein the authentication part performs authentication by using billing information input by a user and available billing information registered beforehand.

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24. The use control method as claimed in
claim 15, the image forming apparatus further
comprising hardware resources used for image forming
processes, and control services that perform processes
5 of the system side including control of the hardware
resources,

wherein the image forming apparatus is
configured so as to be able to install a plurality of
applications separately from the control services, and
10 the use control step is performed by a control service.

15 25. The use control method as claimed in
claim 15, the authentication part comprising:

a user information input part for a user to
input user identification information and user
authentication information;

20 an external server communication part for
sending the user identification information input by
the user to an external server, and receiving user
authentication information corresponding to the user
identification information from the external server;

25 and

a part for determining whether the user authentication information received from the external server is the same as the user authentication information input by the user.

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26. The use control method as claimed in
10 claim 15, the authentication part comprising:
a user information receiving part for receiving, from a client terminal, user identification information and first billing information indicating usage of the image forming apparatus by a user;
15 an external server communication part for sending the user identification information to an external server, and receiving second billing information corresponding to the user identification information from the external server;
20 a billing process part for comparing the first billing information received from the client terminal with the second billing information received from the external server.

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27. The use control method as claimed in
claim 26, wherein the client terminal reads the user
5 identification information and the first billing
information from an external recording medium, and the
user information receiving part receives the user
identification information and the first billing
information from the client terminal.

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28. The use control method as claimed in
15 claim 25, wherein the external server is a LDAP server
on a network.

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29. An image forming apparatus in which a
plurality of applications can be installed, the image
forming apparatus comprising:
a display part for displaying a screen, on an
25 operation panel of the image forming apparatus, for

selecting one or more applications for an authentication part, in which user authentication by the authentication part is applied to use of the one or more applications; and

5 a use control part for receiving an authentication result from the authentication part, and controlling use restriction for the one or more applications according to the authentication result.

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30. The image forming apparatus as claimed in claim 29, wherein information input from the screen is
15 stored in the image forming apparatus as information indicating the one or more applications corresponding to the authentication part.

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31. The image forming apparatus as claimed in claim 29, wherein the display part displays a screen
for selecting one or more functions of an application
25 to which user authentication by the authentication part

is applied.

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32. An image forming apparatus in which a plurality of applications can be installed, the image forming apparatus comprising:

10 a display part for displaying a screen, on an operation panel of the image forming apparatus, for selecting one or more authentication parts for an application, in which user authentication by the one or more authentication parts can be applied to use of the application; and

15 a use control part for receiving one or more authentication results from the one or more authentication parts, and controlling use restriction for the application according to the one or more authentication results.

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33. The image forming apparatus as claimed in
25 claim 32, wherein information input from the screen is

stored in the image forming apparatus as information
indicating the one or more authentication parts
corresponding to the application.

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34. The image forming apparatus as claimed in
claim 32, wherein the display part displays a screen
10 for setting relationship among the one or more
authentication parts.

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35. The image forming apparatus as claimed in
claim 32, wherein the display part displays a screen
for setting information indicating that user
authentication for use of the application succeeds only
20 if authentication by all of the one or more
authentication parts succeeds.

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36. The image forming apparatus as claimed in
claim 32, wherein the display part displays a screen
for setting information indicating that user
authentication for use of the application succeeds if
5 authentication by at least one of the one or more
authentication parts succeeds.

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37. The image forming apparatus as claimed in
claim 29, wherein the authentication part performs
authentication by using user authentication information
input by a user and user authentication information
15 registered beforehand.

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38. The image forming apparatus as claimed in
claim 29, wherein the authentication part performs
authentication by using billing information input by a
user and available billing information registered
beforehand.

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39. The image forming apparatus as claimed in
5 claim 29, the image forming apparatus further
comprising hardware resources used for image forming
processes, and control services that perform processes
of the system side including control of the hardware
resources,
10 wherein the image forming apparatus is
configured so as to be able to install a plurality of
applications separately from the control services, and
the image forming apparatus includes the use control
part and the display part as a control service.

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40. A use control method for an application
20 in an image forming apparatus in which a plurality of
applications can be installed, the use control method
comprising:

a display step for displaying a screen, on an
operation panel of the image forming apparatus, for
25 selecting one or more applications for an

authentication part, in which user authentication by
the authentication part is applied to use of the one or
more applications; and

a use control step for receiving an
5 authentication result from the authentication part, and
controlling use restriction for the one or more
applications according to the authentication result.

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41. The use control method as claimed in
claim 40, wherein information input from the screen is
stored in the image forming apparatus as information
15 indicating the one or more applications corresponding
to the authentication part.

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42. The use control method as claimed in
claim 40, wherein the image forming apparatus displays
a screen for selecting one or more functions of an
application to which user authentication by the
25 authentication part is applied.

5 43. A use control method for an application
in an image forming apparatus in which a plurality of
applications can be installed, the use control method
comprising:

 a display step for displaying a screen, on an
10 operation panel of the image forming apparatus, for
selecting one or more authentication parts for an
application, in which user authentication by the one or
more authentication parts can be applied to use of the
application; and

15 a use control step for receiving one or more
authentication results from the one or more
authentication parts, and controlling use restriction
for the application according to the one or more
authentication results.

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 44. The use control method as claimed in
25 claim 43, wherein information input from the screen is

stored in the image forming apparatus as information
indicating the one or more authentication parts
corresponding to the application.

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45. The use control method as claimed in
claim 43, wherein the image forming apparatus displays
10 a screen for setting relationship among the one or more
authentication parts.

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46. The use control method as claimed in
claim 43, wherein the image forming apparatus displays
a screen for setting information indicating that user
authentication for use of the application succeeds only
20 if authentication by all of the one or more
authentication parts succeeds.

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47. The use control method as claimed in
claim 43, wherein the image forming apparatus displays
a screen for setting information indicating that user
authentication for use of the application succeeds if
5 authentication by at least one of the one or more
authentication parts succeeds.

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48. The use control method as claimed in
claim 40, wherein the authentication part performs
authentication by using user authentication information
input by a user and user authentication information
15 registered beforehand.

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49. The use control method as claimed in
claim 40, wherein the authentication part performs
authentication by using billing information input by a
user and available billing information registered
beforehand.

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50. The use control method as claimed in
5 claim 40, the image forming apparatus further
comprising hardware resources used for image forming
processes, and control services that perform processes
of the system side including control of the hardware
resources,
10 wherein the image forming apparatus is
configured so as to be able to install a plurality of
applications separately from the control services, and
the display step and the use control step are performed
by a control service.

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